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(54) Title: SKIN CREAM COMPOSITION

(57) Abstract

A topical skin cream composition containing a water–based topical cream, alanine, a ribose compound, ascorbic acid, and nicotinic acid, is safe and effective in treating skin damage caused by acne, eczema, psoriasis, dermatitis, and other non–cancerous conditions. The composition may further contain physiological saline, salicyclic acid, and moisturizers. Method for using the composition.

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SKIN CREAM COMPOSITION

FIELD OF THE INVENTION

The present invention is directed to the field of skin cream compositions.

BACKGROUND OF THE INVENTION

Skin is a complex, sensitive organ that serves many functions necessary for well-being and maintenance of life. Skin consists of two major layers: an outer layer and an inner layer. The "outer layer," consisting of large numbers of epithelial cells, is called the "epidermis" and is actually composed of several distinct layers. From the surface inward, they include: the stratum corneum, stratum licidum, stratum granulosum, and stratum germinativum. The "inner layer" of skin is the dense connective tissue below the outer layer and is "corium," "cutis," or "dermis." It is composed of a dense interlacing network of fibrous connective tissue carrying with it blood vessels, nerves, glands, and hair follicles. Skin is prone to being damaged in many ways, i.e. acne, cyst-like inflammations, eczema, psoriasis, dermatitis, and the like. The damage caused by these non-cancerous conditions is substantially different from the damage caused by cancer.

U.S. Pat. No. 5,672,590 discloses a composition for treating cancer comprising a ribose compound, alpha-alanine, ascorbic acid, and nicotinic acid. PCT publication WO 97/26893 discloses another cancer-treating composition which contains a ribose compound, beta-alanine, ascorbic acid, and nicotinic acid.

It has been unexpectedly discovered that a skin cream composition containing alpha-alanine, a ribose compound, ascorbic acid, nicotinic acid, and a water-based cream is safe and effective in treating skin damage caused by non-cancerous conditions.

It would be desirable to develop a safe and effective skin

cream composition for treating skin damaged by non-cancerous conditions, particularly skin damaged from facial acne and the like, and it is an object of the present invention to develop such a skin cream.

It is a further object of the present invention to develop a skin cream composition effective in treating acne, particularly back acne.

It is a still further object of the present invention to produce a skin cream composition effective in reducing skin inflammation and inflammatory conditions such as eczema, psoriasis, and both endogenous and contact dermatitis.

These and still further objects will be apparent from the following description of this invention.

SUMMARY OF THE INVENTION

The present invention is directed to a topical skin cream composition that is safe and effective in treating skin damage caused by acne, eczema, psoriasis, dermatitis, and other similar non-cancerous skin conditions. The composition generally comprises a water-based topical cream, alanine, one or more ribose compounds, ascorbic acid, and nicotinic acid. Generally the composition further contains a physiological saline solution for ease of preparation. Preferably the composition further includes salicylic acid.

DESCRIPTION OF PREFERRED EMBODIMENTS

The present invention is directed to a topical skin cream composition containing a water-based topical cream, alanine, one or more ribose compounds, ascorbic acid, and nicotinic acid. Generally the composition further contains a physiological solution for ease of preparation. Preferably, the composition further contains salicylic acid.

The water-based topical cream may be any topical cream base,

e.g. vanishing cream or the like, that can be combined with the other ingredients of the composition and form an effective skin cream composition. Generally, suitable water based topical creams contain one or more of the following ingredients: polyoxyl stearate 40, stearic acid, cetyl alcohol, stearyl alcohol, isopropyl myristate, xanthine gum, sorbic acid, methyl paraben, propyl paraben, distilled water. Cremori aquasorbi is a preferred cream base. Other structurally or functionally equivalent cream bases are within the scope of this invention.

The water-based cream is generally present in an amount of at least 1 wt %, preferably at least 20 wt %, and more preferably at least 25 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 1 to about 99 wt %, preferably from about 20 to about 60 wt %, and more preferably from about 25 and about 40 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

Alanine is a known material that can be obtained from manufacturers such as Sigma Aldrich and Merck as either alpha-alanine or beta-alanine. While either may be used in the present invention, currently alpha-alanine is preferred. Any isomer of alpha alanine may be used, i.e. D-alpha alanine, L-alpha-alanine, or any mixture thereof. Preferably, a mixture of D- and L-alpha alanine is used. The alpha-alanine is generally present in an amount of at least 0.01 wt %, preferably at least 0.02 wt %, and more preferably at least 0.04 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 0.01 to about 7 wt %, more preferably from about 0.02 and about 3 wt %, more preferably from about 0.04 to about 1 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable. L-beta-alanine is the most preferred form of beta-alanine.

The ribose compound may be any ribose compound that includes but is not limited to ribose, deoxyribose (2-deoxy-D-ribose),

other ribose derivatives, and mixtures thereof. Specific examples of suitable ribose compounds include but are not limited to D-ribose, D-ribose 1-phosphate cyclohexylamine salt, D-ribose 5-phosphate barium salt hexahydrate, D-ribose 5-phosphate disodium salt dihydrate, and 2-deoxy-alpha-D-ribose-1-phosphate bis(cyclohexylamine) salt. Other structurally or functionally equivalent ribose compounds are within the scope of this invention.

The ribose compound (or mixture of compounds) is ordinarily present at an amount of at least 0.01 wt %, preferably at least 0.05 wt %, and more preferably at least 0.075 wt %, based on the total weight of the composition. Suitable amounts of ribose compounds ordinarily range from about 0.01 to about 20 wt %, preferably from about 0.05 to about 5 wt %, and more preferably from about 0.075 to about 2 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

Ascorbic acid is a known compound. Ascorbic acid is ordinarily present at an amount of at least 0.01 wt %, preferably at least 0.05 wt %, and more preferably at least 0.075 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 0.01 to about 10 wt %, more preferably from about 0.05 to about 3 wt %, and more preferably from about 0.075 to about 1 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

Nicotinic acid is generally present in an amount of at least 0.001 wt %, preferably at least 0.01 wt %, and more preferably at least 0.02 wt %, based on the total weight of the composition. Suitable ranges ordinarily extend from about 0.001 to about 7 wt %, more preferably from about 0.01 to about 1 wt %, and more preferably from about 0.02 to about 0.5 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

The physiological solution may be any physiological solution which can be combined with the other ingredients of the skin cream composition. Preferably, a physiological saline solution is used. The physiological solution is ordinarily present at an amount of at least 0.03 wt %, preferably at least 0.5 wt %, and more preferably at least 5 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 0.03 to about 30 wt %, more preferably from about 0.5 to about 10 wt %, and more preferably from about 5 to about 8 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

Salicylic acid is a known material that can be commercially obtained. While the salicylic acid is generally present in an amount of at least 0.5 wt %, it may be present in the range from about 0.1 to about 20 wt %, and even more preferably from about 0.5 to about 2 wt %, based upon the total weight of the composition. Other ranges may also be suitable.

In addition to the above ingredients, the composition may also contain an adenosine compound, i.e. adenosine or an adenosine derivative that is advantageous to the metabolic activity of cells. The adenosine compound will ordinarily be an adenosine triphosphate-forming compound such as a nicotinic acid derivative or precursor thereof. Suitable such nicotinic acid derivatives include nicotinamide adenine dinucleotide, hydronicotinamide adenine dinucleotide, nicotinamide adenine dinucleotide phosphate, beta-nicotinamide adenine dinucleotide monohydrate, beta-nicotinamide adenine dinucleotide dihydrate, beta-nicotinamide adenine dinucleotide phosphate disodium salt, beta-nicotinamide adenine dinucleotide phosphate sodium salt, beta-nicotinamide adenine dinucleotide phosphoric acid, beta-nicotinamide mononucleotide. Adenosine monophosphate may be used as a precursor to nicotinamide adenine dinucleotide. Other structurally or functionally equivalent adenosine compounds may also be suitable.

For instance, examples of some other adenosine compounds include, but are not limited to, adenosine-5'-monophosphate disodium salt, adenosine-3'5'-cyclophosphate sodium salt monohydrate, adenosine-3'5'-cyclophosphoric acid, adenosine deaminase, adenosine-5' diphosphate disodium salt, adenosine-5'-diphosphate monopotassium salt dihydrate, adenosine-5'-diphosphoric acid, adenosine-5'-[β,γ-imido] triphosphate tetralithium salt dihydrate, adenosine-5'-[α,β-methylene] diphosphoric acid, adenosine-5'-[α,β-methylene] triphosphate tetralithium salt, adenosine-5'-[β,γ-methylene] triphosphate tetralithium salt, adenosine-5'-monophosphoramidate sodium salt, adenosine-3'-monophosphoric acid, adenosine-3'-(+2)-monophosphoric acid monohydrate, adenosine-5'-monophosphoric acid monohydrate, adenosine-3'-phosphate-5'-phosphosulfate tetralithium salt tetrahydrate, adenosine-5'-[β-thio] diphosphate trilithium salt, adenosine-5'-[α-thio] monophosphate dilithium salt, adenosine-5'-[γ-thio] triphosphate tetralithium salt, adenosine-5'-triphosphatase, adenosine-5'-triphosphate bis(TRIS) salt dihydrate, adenosine-5'-triphosphate dipotassium salt dihydrate, adenosine-5'-triphosphate disodium salt hydrate, adenosine-5'-triphosphate immobilized on agarose 4B, adenosine-5'-triphosphate magnesium salt hydrate, and adenosine-5'-triphosphate P^3-[1-(2-nitrophenyl) ethylester] disodium salt.

The adenosine compound, when used, is generally present at an amount of at least 0.01 wt %, preferably at least 0.02 wt %, and more preferably at least 0.04 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 0.01 to about 5 wt %, more preferably from about 0.02 and about 3 wt %, more preferably from about 0.04 to about 1 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

Preferably the skin cream composition further contains one or more moisturizers. Suitable such moisturizers include but are not limited to oleum helianthi (sunflower oil), evening primrose oil, ung. glycerini (pure medical glycerine), cera alba (pure

white sterile medical/cosmetic wax), aloe vera, jojoba oil, and safflower oil. Other structurally or functionally equivalent moisturizers are also within the scope of the present invention. It is believed that evening primrose oil and/or jojoba oil, in addition to being moisturizers, may enhance the effectiveness of the composition for treating acne.

The moisturizers are ordinarily present at an amount of at least 1 wt %, preferably at least 10 wt %, and more preferably at least 40 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 1 to about 80 wt %, more preferably from about 10 to about 75 wt %, and more preferably from about 40 to about 70 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

For further enhancing the composition's moisturizing capacity, oils and vitamins such as vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, vitamin F (essential fatty acids), vitamin K, juniper essential oil (*Juniperus communis*), tea tree essential oil (*Melaleuca alternifolia*), chamomile roman essential oil (*Anthemis nobilis*) and petitgrain essential oil (*Citrus aurantium*) may be used. Such oils are ordinarily present at an amount of at least 0.1 wt %, preferably at least 1 wt %, and more preferably at least 2 wt %, based on the total weight of the composition. Suitable amounts ordinarily range from about 0.1 to about 20 wt %, more preferably from about 1 to about 10 wt %, and more preferably from about 2 to about 5 wt %, based on the total weight of the composition. Other ranges within the ranges expressly disclosed above may also be suitable.

The skin cream composition of this invention may be made by combining suitable amounts of the water-based cream, ribose compound, alanine, ascorbic acid, nicotinic acid, physiological saline, and any optional ingredients including salicylic acid in a mixing vessel. The ingredients may be mixed conventionally, i.e. by stirring, until a substantially homogenous mixture is

obtained. The mixing time required to form the homogenous mixture depends on factors such as the temperature, the degree of mixing, and the like. The mixing temperature is preferably about room temperature, but is not critical provided that the temperature is not so high as to harm any of the individual ingredients.

The topical skin cream composition is preferably made by forming one or more separate pre-mixtures of ingredients and then combining the pre-mixtures. For instance, the composition may be prepared by a method involving (i) forming a first pre-mixture of the alanine, ribose compound(s), ascorbic acid, and nicotinic acid, in a physiological solution, (ii) forming a second pre-mixture of a water-based topical cream and moisturizers, if any, and (iii) combining the two pre-mixtures prior to use. When an adenosine compound is used, it is preferably added to the first pre-mixture. When salicylic acid is used, it is preferably incorporated into the second pre-mixture.

To make the first pre-mixture, the ascorbic acid, ribose compound, alpha-alanine and nicotinic acid may be sequentially dissolved in a saline solution in a vessel in a sterile environment and mixed until a homogenous mixture forms. Once the ingredients of this pre-mixture are dissolved, they are processed through a filter to remove undissolved particles. This first pre-mixture is then preferably placed in an air tight container and left in a dry, cool and dark environment (refrigerator) for a period of at least about 6 hours.

The second pre-mixture may be made by blending the water-based cream, salicylic acid, and any moisturizers in a sterile preparation dish, i.e. a mixing dish, in a water bath heated to a suitable temperature, e.g. from about 80 to 95°C. When moisturizers are not combined with the water-based cream, the cream base is ordinarily not placed in a mixing dish in a water bath. If moisturizers are used along with salicylic acid, the acid is preferably added after the moisturizers. Once added, the

ingredients are mixed until fully dissolved.

The first and second pre-mixtures may then be mixed in a vessel at a cool temperature, e.g. from about 5 to about 15°C. The above selection of pre-mixtures is illustrative and pre-mixtures having other combinations of ingredients are possible. To store the composition, the skin cream composition is typically refrigerated. Preferably, the composition is stored away from light. The skin cream composition has a storage stability that ordinarily ranges from about 2 to about 6 months.

In use, the skin cream composition may be used to treat damaged skin of skin acne, inflammations such as eczema, dermatitis, psoriasis, and other non-cancerous conditions, including such as post-surgical inflamation and diaper rash. The skin cream composition is applied in an amount that is sufficiently great to cover over damaged skin, e.g. a 1 mm film over the affected area, and the composition is quickly absorbed by the skin.

The invention is illustrated in the following nonlimiting examples. All parts and per cents are based upon the total weight of the composition unless otherwise specified.

EXAMPLE 1

1 kg of a skin cream composition of this invention was made as follows. A pre-mixture was made by dissolving separately and sequentially 750 mg ascorbic acid, 750 mg of D-ribose and 750 mg of 2-deoxy-D-ribose in a 50 ml of a saline solution. Then 400 mg alpha-alanine and 250 mg nicotinic acid were added and dissolved separately into the saline mixture. Once dissolved, the mixture was filtered through a membrane filter and the pre-mixture was placed in an air-tight container and held in a refrigerator at 3°C for about 6 hours. The pre-mixture was then mixed into 1000 g of a water-based topical cream base (cremori aquasorbi) and formed a uniform product. After the mixing was completed, the cream was stored in dark environment from about 3-10°C.

EXAMPLE 2

To determine the safety and efficacy of the composition of Example 1 in reducing skin inflammation, 4 individuals that had recently undergone surgery were selected. The individuals had redness and swollen skin in the area where sutures had been placed. The composition of Example 1 was applied over the suture area, and the inflammation and redness around the sutures were significantly reduced within 72 hours.

EXAMPLE 3

To provide the composition of Example 1 with moisturizing capacity, the procedure of Example 1 was repeated except that the water-based cream was replaced by a second pre-mixture made as follows. 320 g of the water-based cream was placed in a sterile mixing dish that had been placed in a water bath heated to a temperature of about 80 to 95°C. Thereafter, 320 g evening primrose oil, 320 g glycerine, and 40 g cera alba were dissolved into the water-based cream. The second pre-mixture was then cooled and mixed with the other pre-mixture which contained the ascorbic acid, D-ribose, 2-deoxy-D-ribose, alpha-alanine, nicotinic acid, and the saline solution.

EXAMPLE 4

To determine the safety and efficacy of the composition of Example 3 in treating teenage facial acne, 25 people (14 to 20 years in age) that had been afflicted with continuously recurring acne for several months or even years were selected. The skin cream composition was applied on the acned faces twice daily for 25 consecutive days. The results are shown in Table 1.

TABLE 1

RESPONSE	# of Responses	% of Total
No visible acne	7	28
About 75% clear	11	44
About 50% clear	4	16

Less than 50% clear	3	12

The results indicate that the skin cream composition was safe and effective for treating facial acne.

Follow-up observations two months after the last application of the skin cream composition were made. Seven individuals (28%) experienced a recurrence of facial acne to the original, pre-treatment level. A moderate amount of facial acne reappeared in 11 individuals. Two people had no acne recurrence. The results correspond with the medical observation that teenage acne is predominantly a result of rising hormone levels in the body. Thus, topical treatments generally help to control the condition, not cure it.

EXAMPLE 5

To determine the safety and efficacy of the composition in treating adult facial acne, the procedure of Examples 1 and 2 was repeated except that the water-based cream base was replaced with a mixture of 320 g cream base, 160 g evening primrose oil, 160 g oleum helianthi, 320 g glycerine, and 40 g cera alba.

Seven adult women aged 34 to 43 afflicted with severe cyst-like facial acne were selected for treatment. Cyst-like inflammations occurring from time-to-time had previously been treated with antibiotics (tetracycline or a derivative) and/or with antibiotic ointments. The conditions had not improved as the cysts continued to recur, resulting in severe facial scarring. Previously, a new cyst had been left untreated to run its course or, when a severe persistent cyst occurred, it had been surgically drained.

A significant reduction in the size of newly forming cysts was experienced in all 7 women after the skin cream composition was applied twice daily onto each spot where a new cyst was

starting to form until the cyst was no longer visible or was substantially smaller. Generally the skin cream composition was applied four times over a 2 day period because the cysts in most women disappeared within 48 hours from the first application. Those cysts that did not disappear entirely were observed to run their course in significantly less severe fashion than previously.

EXAMPLE 6

To determine the safety and efficacy of the composition in treating back acne, 15 adults afflicted with back acne were selected for treatment. The composition of Example 5 was applied on their backs twice daily for 14 days and thereafter once daily for a period of an additional 10 weeks. The results are in Table 2.

TABLE 2

RESPONSE	# of Responses	% of Total
No visible acne	5	33
About 75% clear	7	47
About 50% clear	2	13
Less than 50% clear	1	7

Follow-up observations two months after the last application of the skin cream composition were made. A moderate amount of back acne had started to reappear in 50% of the adults. The composition was again applied once daily for 14 days again and the condition improved in all patients. The results indicate that the skin cream composition was safe and effective.

EXAMPLE 7

The procedure of Examples 1 and 2 were repeated except that the water-based cream was replaced with a composition of 320 g water based cream base, 160 g evening primrose oil, 160 g oleum helianthi, 160 g jojoba oil, 160 g glycerine, and 40 g cera alba. In addition, 0.5 wt % of salicylic acid was added.

To determine the safety and efficacy of this composition in treating facial acne, 15 people (15 to 25 years in age) who had been afflicted with continuously recurring acne for several months or years were selected. The skin cream composition was applied on the affected areas once or twice daily (depending on the severity of the problem and on the dryness of the skin) for 25 consecutive days. Table 3 indicates the results.

TABLE 3

RESPONSE	# of Responses	% of Total
No visible acne	6	40
About 75% clear	5	33
About 50% clear	2	13.5
Less than 50% clear	2	13.5

The results indicate that the skin cream composition was safe and effective for treating facial acne.

EXAMPLE 8

A skin cream composition of this invention was made as follows: A pre-mixture was made by dissolving separately and sequentially 2.25 g ascorbic acid, 2.25 g D-ribose, and 2.25 g 2-deoxy-D-ribose in 100 ml physiological saline solution. Then 1.2 g D,L-alpha-alanine and 0.75 g nicotinic acid were added and dissolved separately into the saline mixture. The mixture was filtered, placed in an air-tight container, and left in a refrigerator at 3°C for about 6 hours.

A second pre-mixture was made as follows: 320 g of the water-based cream base was placed in a sterile mixing dish in a water bath heated to a temperature of about 80-95°C. Then, 160 g evening primrose oil, 160 g oleum helianthi, 160 g jojoba oil, 160 g glycerine, and 40 g cera alba were dissolved into the cream base. This second pre-mixture was cooled and mixed with the first pre-mixture.

To determine the efficacy and safety of the composition of this Example in treating facial acne, 15 people (15-25 years of age) that had been afflicted with continuously recurring acne for several months or years were selected. The skin cream composition was applied on the affected areas once or twice daily (depending on the severity of the problem and on the dryness of the skin) for 25 consecutive days. Table 4 indicates the results.

TABLE 4

RESPONSE	# of Responses	% of Total
No visible acne	8	53
About 75% clear	4	27
About 50% clear	2	13
Less than 50% clear	1	7

The skin cream composition was safe and effective for treating facial acne.

EXAMPLE 9

To determine the safety and efficacy of the composition of Example 8 in treating contact dermatitis, six (6) people who were afflicted with contact dermatitis were selected. Four of these individuals had been previously treated with other topical medications containing corticoids resulting in worsening of the condition. The skin cream composition was applied on the affected areas twice daily for 20 consecutive days. Table 5 shows the results.

TABLE 5

RESPONSE	# of Responses	% of Total
No visible dermatitis	4	67
About 70% clear	2	33

The skin cream composition effectively treated dermatitis.

EXAMPLE 10

To determine the safety and efficacy of the composition of Example 8 in treating eczema, 5 people who had been afflicted with eczema affecting either their feet, arms, or scalp were selected. The skin cream composition was applied on the affected areas twice daily for 20 consecutive days. Table 6 indicates the results.

TABLE 6

RESPONSE	# of Responses	% of Total
No visible eczema	3	60
About 60% clear	2	40

The results indicate that the skin cream composition was safe and effective for treating eczema.

EXAMPLE 11

To determine the safety and efficacy of a variation of the composition of Example 8 in treating back acne, the composition was made as in Example 8 except that 0.5 wt % salicylic acid was added to the first pre-mixture.

15 adults who had been afflicted with back acne were selected. The skin cream composition was applied on the affected areas twice daily for 14 consecutive days and thereafter once daily for a period of an additional 5 to 10 weeks, depending on the severity of the condition. Table 7 indicates the results.

TABLE 7

RESPONSE	# of Responses	% of Total
No visible back acne	7	46.5
About 25% acne remained	7	46.5
About 50% acne remained	1	7
More than 50% acne remained	0	0

This skin cream composition was safe and effective for treating back acne.

CLAIMS:

1. A topical treatment composition to be applied to skin damaged from a non-cancerous skin condition characterized by alanine, a ribose compound, ascorbic acid, and nicotinic acid dispersed in a water-based topical cream.

2. The composition of Claim 1, characterized in that the alanine is present in an amount up to about 7%, the ribose compound is present in an amount up to about 20%, the ascorbic acid is present in an amount up to about 10%, and the nicotinic acid is present in an amount up to about 7%, all by weight based upon the total weight of the composition.

3. The composition of Claim 1, characterized in that the alanine is alpha-alanine.

4. The composition of Claim 1, characterized in that the ribose compound is a mixture of D-ribose and 2-deoxy-D-ribose.

5. The composition of Claim 1, characterized in that the alanine is present in an amount of from about 0.02 to about 3 wt %, the ribose compound is present in an amount of from about 0.05 to about 5 wt %, the ascorbic acid is present in an amount of from about 0.05 to about 3 wt %, and the nicotinic acid is present in an amount of from about 0.01 to about 1 wt %, based on the total weight of the composition.

6. The composition of any of Claims 1-5, further containing salicylic acid.

7. The composition of any of Claims 1-6, further containing a moisturizer in an amount up to about 80 wt %, based on the total weight of the composition.

8. The composition of Claim 7, characterized in that the moisturizer is evening primrose oil, jojoba oil, or a mixture thereof.

9. The composition any of Claims 1-8, further containing a vitamin selected from the group consisting of vitamin A, vitamin B, vitamin C, vitamin D, vitamin E, vitamin F, and vitamin K, or an oil selected from the group consisting of juniper essential oil (*Juniperus communis*), tea tree essential oil (*Melaleuca alternifolia*), chamomile roman essential oil (*Anthemis nobilis*) and petitgrain essential oil (*Citrus aurantium*).

10. A method of treating skin damaged by a non-cancerous skin condition characterized by topically applying to said skin a composition of any of Claims 1-9.

11. The method of Claim 10, characterized in that the skin condition is selected from the group consisting of acne, eczema, psoriasis, dermatitis, post-surgical inflamation, and diaper rash.

12. The method of Claim 10, characterized in that the composition is applied over the damaged skin at a rate which produces a film at least 1 mm thick.

INTERNATIONAL SEARCH REPORT

Int .tional Application No
PCT/US 98/07430

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A61K7/48 A61K31/455 A61K31/70 A61K31/195 A61K31/375 A61K31/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 107 885 A (CRINOS INDUSTRIA FARMACO) 9 May 1984 see claims 1,4,5,10	1-4,7,9, 10
A	EP 0 103 878 A (HUMAN OLTOANYAGTERMELO) 28 March 1984 see page 7, line 1 - line 8; examples 1,3	1,2,4, 9-11
A	US 4 937 234 A (FAHIM MOSTAFA S) 26 June 1990 see claims 5,7-9,11	1,10,11
A	WO 93 10802 A (RIEMSCHNEIDER RANDOLPH) 10 June 1993 see page 3, line 11 - page 5, line 7 see page 6, line 1 - line 17 see page 17, line 4 see page 18, line 18; example 1	1,3,8,10

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&" document member of the same patent family

Date of the actual completion of theinternational search	Date of mailing of the international search report
6 July 1998	13/07/1998

Name and mailing address of the ISA	Authorized officer
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1

INTERNATIONAL SEARCH REPORT

Information on patent family members

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